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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

| EXAMINER | |
|---|---|
| MOREHEAD, JOHN H | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/805,218 | POLLARD, STEPHEN BERNARD | |
| | Examiner | Art Unit | |
| | John Morehead | 2622 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-7,9-11 and 23-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-7,9-11 and 23-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 10/05/2007 have been fully considered but they are not persuasive.

2. Applicant argues that Koseki fails anticipate a zoom apparatus wherein a transition period between discrete zoom levels of a digital representation of an image is arranged to be initiated only at the end points of an optical lens zoom range.

3. Examiner respectfully disagrees. As shown in figs. 19 and 20, electronic zoom, or digital zoom, occurs at $f1_E$. At point of change 1, $f1_E$ is at a electronic zoom of 2x, at point of change 2, $f1_E$ is at a electronic zoom of 4x, furthermore, the transition periods between discreet zoom levels occurs at the end points of the optical lens zoom range, see fig. 19, $f1_O$ represents optical zooming. Therefore based on claim limitation as recited in claims 5 and 9, Koseki anticipates "*a zoom apparatus wherein a transition period between discrete zoom levels of a digital representation of an image is arranged to be initiated only at the end points of an optical lens zoom range.*" Even if the claim limitation is not anticipated by Koseki, it is well known in the art that electronic, or digital zooming, occurs after optical zooming, or when the optical zooming lens is at the end of its driving range.

4. Applicant further argues that Koseki fails to anticipate that the rate of change of apparent zoom level is substantially equal to the rate of change of zoom level provided by the optical zoom lens.

5. Examiner respectfully disagrees. As shown in fig. 22, $f2_O$ represents optical zooming, $f2_T$ represents a change in the overall zoom magnification of the optical and electronic zoom combined. $f2_O$ is changing at a constant rate, therefore as the rate of change of the optical zoom lens increases, the overall zoom magnification, as shown in $f2_T$ increases, thus the optical zoom lens magnification is proportionate to the overall zoom magnification. The limitation "*substantially equal*," is written broadly enough that Koseki anticipates the claim limitation as recited in claim 5, the rate of change of zoom level disclosed by Koseki, fig. 22 element $f2_T$, is "*substantially equal*" to the rate of change of zoom level provided by the optical zoom lens, fig. 22 element $f2_O$.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2-7, 9-11, and 23-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Koseki et al US 6947074.

3. Re claim 2, Koseki further discloses zoom apparatus according to claim 9, wherein during the transition period between discrete zoom levels the optical zoom lens

is arranged to be adjusted to substantially compensate for the change in discrete digital zoom level (fig. 19 and 20, col. 16 lines 25-67, and col. 17 lines 1-26).

Re claim 3, Koseki further discloses zoom apparatus according to claim 2, wherein the optical zoom lens is arranged to be automatically adjusted to a point in the optical zoom lens zoom range that provides, as a product of zoom level with the changed digital zoom level, a total apparent zoom level substantially equal to the zoom level provided by the digital interpolation (col. 20 lines 10-14, also, see claim 2).

Re claim 4, Koseki further discloses zoom apparatus according to claim 10, wherein the zoom lens is arranged to be automatically adjusted from a first end of the zoom range of the zoom lens towards a second end of the zoom range during the transition period between discrete zoom levels (fig. 19 and 20, col. 16 lines 25-67, and col. 17 lines 1-26).

Re claim 5, Koseki further discloses zoom apparatus according to claim 4, wherein the transition period between discrete zoom levels is arranged to be initiated only at the end points of the optical zoom lens zoom range (fig. 19 and 20, col. 16 lines 25-67, and col. 17 lines 1-26).

Re claim 6, Koseki further discloses zoom apparatus according to claim 9, wherein the digital zoom apparatus is arranged to apply the digital interpolation such

that the rate of change of total apparent zoom level is substantially equal to the rate of change of zoom level provided by the optical zoom lens (figs. 21 and 22, col. 18 lines 43-67 and col. 19 lines 1-20).

Re claim 7, Koseki further discloses zoom apparatus according to claim 9, wherein the discrete digital zoom levels are arranged to be provided by applying discrete charge binning schemes (fig. 6a, col. 8 lines 41-59).

Re claim 9, Koseki further discloses zoom apparatus (fig. 1) for digital image processing comprising; an optical zoom lens (fig. 1 element 1) arranged to provide an image across a continuous zoom range (col. 5 lines 26-35); an image sensor (fig. 1 element 8) arranged to receive an image from the optical zoom lens and to provide a digital representation of the image (col. 5 lines 55-65); and digital zoom apparatus arranged to apply (a) one of at least two discrete zoom levels to the digital representation of the image such that the total apparent zoom level is the product of the discrete digital zoom level and the optical zoom level, and (b) digital interpolation to the digital representation of the image during a transition period between discrete zoom levels the transition period, between discrete zoom levels being arranged to be initiated only at the end points of the optical zoom lens zoom range (limitations a and b have been discussed and rejected, see response to arguments, also see rejected claim 5).

Re claim 10, Koseki further discloses a zoom apparatus (fig. 1) for digital image processing comprising; an optical zoom lens (fig. 1 element 1) arranged to provide an image across a continuous zoom range (col. 5 lines 26-35); an image sensor (fig. 1 element 8) arranged to receive an image from the optical zoom lens and to provide a digital representation of the image (col. 5 lines 55-65); and digital zoom apparatus arranged to apply (a) one of at least two discrete zoom levels to the digital representation of the image such that the total apparent zoom level is the product of the discrete digital zoom level and the optical zoom level, and (b) digital interpolation to the digital representation of the image during a transition period between discrete zoom levels the digital zoom apparatus is being arranged to apply the digital interpolation such that the rate of change of total apparent zoom level is substantially equal to the rate of change of zoom level provided by the optical zoom lens (claim limitation has already been discussed and rejected, see response to arguments and rejected claim 6).

Re claim 11, Koseki further discloses zoom apparatus according to claim 10, wherein the discrete digital zoom levels are arranged to be provided by applying discrete charge binning schemes (claim limitation has already been discussed and rejected, see claim 7).

Re claim 23, Koseki further discloses a digital camera in combination with the zoom apparatus according to claim 9 (fig. 1).

Re claim 24, Koseki further discloses a digital camera in combination with the zoom apparatus according to claim 10 (fig. 1).

Re claim 25, Koseki further discloses zoom apparatus according to claim 10, wherein during the transition period between discrete zoom levels the optical zoom lens is arranged to be adjusted to substantially compensate for the change in discrete digital zoom level (claim limitation has already been discussed and rejected, see claim 2).

Re claim 26, Koseki further discloses zoom apparatus according to claim 25, wherein the optical zoom lens is arranged to be automatically adjusted to a point in the optical zoom lens zoom range that provides, as a product of zoom level with the changed digital zoom level, a total apparent zoom level substantially equal to the zoom level provided by the digital interpolation (claim limitation has already been discussed and rejected, see claim 4).

Re claim 27, Koseki further discloses a method of operating a digital camera having (a) an optical zoom that is continuously variable between the ends of its image magnification range defined by a minimum image magnification and a maximum image magnification, (b) an electronic zoom that has discrete image magnification levels and levels between said discrete image magnification levels, and (c) a controller (fig. 1 element 11) for total image magnification by both the optical and electronic image magnifications (as shown by figs. 19 and 20, the optical zoom, $f1_O$, is continuously

variable between the ends of its image magnification with its minimum being 1x and its maximum 3.2x, the electronic zoom, $f1_E$, has discrete image magnification levels at 2x and 4x, the controller, fig. 1 element 11, controls the entire camera, including the image magnification by both the optical and electronic zoom, col. 16 lines 25-67 col. 17 lines 1-67 and col. 18 lines 1-35) , the method comprising: (1) continuously activating the controller while the optical zoom is changing toward one end of its magnification range and while (its inherent that the controller has to be activated in order to move the optical zoom lens in any direction) (a) the optical zoom is at said one end of its magnification range, and (b) the electronic zoom is at a first of its discrete magnification levels at point of change 1, the electronic zoom is at 2x); (2) during step (1), multiplying the optical zoom magnification by the electronic zoom magnification of the first discrete level (once optical zoom reaches an end point, then digital zooming takes place, once digital zooming takes place, the total apparent zoom is the optical multiplied by the digital, col. 17 lines 11-20, also see response to arguments); (3) in response to the optical zoom being at said one end of its range during step (1), changing the optical zoom magnification in a direction opposite to the direction the optical zoom is changing during step (1) while continuing to multiply the optical zoom magnification by the electronic zoom magnification of the first discrete level to obtain a product magnification (as shown at point of change 1 in fig. 19, once the optical lens reaches an end point, the optical lens backs off in a opposite direction while maintaining the electronic zoom magnification, furthermore, as stated in the response to arguments the total zoom is the optical multiplied by the digital zooming); (4) while the optical zoom is changing in said

opposite direction during step (3), (a) changing the electronic zoom magnification in the same direction and at the same rate as the optical zoom was changed during step (col. 17 lines 21-26) (1), the changes in the optical and electronic zooms of steps (3) and (4) lasting for the time taken to back off the optical zoom, and (b) adding the changing electronic zoom magnification of step (4) to the product magnification of step (3) (as can be seen in fig. 19, at point of change 2, as the optical lens is backed away the electronic zoom changes for the time taken to back off the optical zoom); (5) upon completion of the back off of the optical zoom, (a) changing the electronic zoom to a second one of the discrete magnification levels that is next to the first discrete magnification level and (b) changing the optical zoom magnification in the same direction as it was changed during step (1) (fig. 19); (6) during step (5), multiplying the optical zoom magnification by the electronic zoom magnification of the second discrete level; and (7) causing the total magnification of the optical and electronic zooms from step (1) to step (5) to change without substantial step changes (fig. 20 shows the second discrete level of the electronic zoom at 4, multiplying the optical and electronic zoom causes the total magnification to change without substantial step changes).

Re claim 28, Koseki further discloses the method of claim 27 wherein the total magnification of the optical and electronic zooms from step (1) to step (5) has a rate of change equal to the optical zoom magnification rate of change while the electronic zoom has a magnification value of 1.0 (It is inherent that the total magnification, which is

the optical zoom multiplied by the digital zoom, is contingent upon the optical zoom magnification rate of change).

Re claim 29, Koseki further discloses the method of claim 27 wherein the optical zoom magnification during step (3) does not reach either end of the optical zoom magnification range (as shown in fig. 19, the optical zoom does not reach either end of the optical zoom magnification range).

***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Morehead whose telephone number is 571-270-1183. The examiner can normally be reached on Monday - Friday (alt) 7:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JHM 01/18/2008

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER